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SFUND RECORDS CTR 2462-00235

SFUND RECORDS CTR 110305

September 26, 2000

Lockheed Martin Corporation West Coast Project Office 2550 N. Hollywood Way, 3rd Floor Burbank, California 91505

Telephone

Attention: N

Mr. Eric Hodder

562.951.2000

Project Supervisor

Facsimile

562.951.2100

Subject:

July 2000 Data Report

Water Supply Contingency Plan Production Well Sampling Program Crafton-Redlands Plume Project

Dear Mr. Hodder:

This report presents a summary of results of the Water Supply Contingency Plan production well sampling for the month of July 2000. The Water Supply Contingency Plan (WSCP) was prepared by Lockheed Martin Corporation and submitted to the State of California Regional Water Quality Control Board (RWQCB) Santa Ana Region on September 30, 1996. The plan was conditionally approved by the RWQCB in a letter dated March 6, 1997. The WSCP for the Crafton-Redlands Plume was prepared to address maintenance of water supply to purveyors in the event that wells became impacted with trichloroethene (TCE) from the Crafton-Redlands TCE Plume. A summary of key dates and WSCP sampling program evolution is provided on Table 1.

The locations of the WSCP wells and analytical results for the July 2000 sampling event for TCE and perchlorate are shown on Figures 1 and 2, respectively. Table 2 presents a summary of analytical tests performed on each WSCP well and water system sampling point. The sampling frequency of each well is once a month for the first year. More frequent sampling, if required, is based on the analytical results as outlined in the WSCP TCE and perchlorate decision matrices, provided as Figures 3 and 4, respectively. The perchlorate decision matrix was presented in the Perchlorate Work Plan and Schedule, which was submitted to the RWQCB on August 15, 1997. The RWQCB approved the Perchlorate Work Plan on October 31, 1997. Table 3 presents a summary of the wells sampled twice monthly according to the decision matrices.



RESULTS

Summaries of the analytical results for the July 2000 WSCP sampling event for TCE and perchlorate are shown on Figures 1 and 2, respectively, and presented on Table 4. Available groundwater elevation data are provided on Table 5. The water sampling field forms are provided in Attachment A. Chain-of-custody, laboratory data sheets, and Level III laboratory quality assurance/quality control (QA/QC) documentation are provided in Attachment B.

Trichloroethene

Four groundwater samples collected in July met or exceeded 2/5th the MCL for TCE (i.e., were greater than or equal to 2.0 :g/L) including: Gage 26-1 (7.7 :g/L), Gage 27-1 (6.1 :g/L), Gage 29-2 (4.7 :g/L) and Gage 29-3 (7.3 :g/L). The TCE impacts at Gage 26-1, Gage 27-1, Gage 29-2 and Gage 29-3 are partially attributed to the Norton AFB plume and partially attributed to the Crafton Redlands plume.

Richardson #1 was activated for sampling only. The purge water from Richardson #1 was pumped to waste, and not into the system.

The COLL Richardson Blend sampling point was not sampled in July because only the Richardson #3 well was pumping into the Richardson system. Thus, sampling of this sample point would be redundant.

Gage 26-1 and Gage 27-1 were placed into TCE treatment in May 1999; TCE treatment was installed at Gage 29-2, Gage 29-3, and Gage 92-1 in February 2000. Therefore, these five wells will be sampled once a month for TCE when active.

Eleven of the WSCP wells have now had measured TCE concentrations averaging less than one-fifth of the MCL (i.e., < 1.0 :g/L) over the past 12 months. According to the decision matrix for sampling TCE (Figure 3), the sampling frequency for these wells may now be changed from monthly to quarterly. The following wells were sampled for the quarterly sampling event in July 2000:

Richardson #3	Southern Cal. Edison #2	Gage #29-1
Gage #30-1	Gage #46-1	Gage #51-1
Gage #56-1	Gage #66-1	Gage #92-2
Gage #92-3	City of Redlands Rees	

Perchlorate

In the July WSCP sampling, perchlorate was detected at or above 75 percent of the PAL (i.e., greater than or equal to 13.5 :g/L) in COLL Richardson #1 (15 :g/L), Gage 26-1 (14 :g/L), Gage 29-2 (35 :g/L), Gage 29-3 (46 :g/L) Gage 51-1 (20 :g/L) and Gage 92-1 (20 :g/L).

Gage 26-1, Gage 29-2, Gage 29-3, Gage 51-1, Gage 92-1 and COLL Richardson #1 wells are currently being sampled twice a month for perchlorate, if active.

Six of the WSCP wells have now had measured perchlorate concentrations averaging less than one-quarter of the PAL (i.e., < 4.5 :g/L) over the past 12 months. According to the decision matrix for sampling perchlorate (Figure 4), the sampling frequency for these wells may now be changed from monthly to quarterly. The following wells were sampled for the quarterly sampling event in July 2000:

Richardson #3

Southern Cal. Edison #2

Gage #30-1

Gage #56-1

Gage #92-2

Gage #92-3

CLOSING

Earth Tech greatly appreciates being of continued service to Lockheed Martin Corporation on this project. Should you have any questions or comments, please do not hesitate to call.

Sincerely, Earth Tech

Eric Peterson, P.E. **Program Director**

Matthew Werner, R.G., C.E.G., C.H.

Project Manager

TABLES

TABLE 1

KEY PROJECT DATES AND WSCP SAMPLING PROGRAM EVOLUTION

August 2, 1996, the RWQCB – Santa Ana Region requested Lockheed Martin to submit a conceptual Water Supply Contingency Plan.

September 30, 1996, Lockheed Martin submitted the Water Supply Contingency Plan (WSCP) to the RWQCB – Santa Ana Region.

March 6, 1997, the RWQCB conditionally approved the WSCP, which included sampling eight production wells (City of Loma Linda Richardson #1, Richardson #2, Mountain View #1, Mountain View #2, Victoria Farms Mutual Water Company Wells #1 and #3, and Southern California Edison #1 and #2).

June 1997, Victoria Farms Mutual Water Company was connected of City of San Bernardino Water. Pumping ceased at VFMWC #1 and #3, and the two wells were removed from the program.

June 1997, sampling of SCE #1 was discontinued because it is not operated on a regular basis. The WSCP consists of five wells, including COLL Mountain View #1 and #2, COLL Richardson #1 and #2, and SCE #2 (AUX).

August 1997, the WSCP was expanded due to the detection of perchlorate in municipal supply wells in the Bunker Hill Basin. Twenty-six wells were added to the WSCP including nineteen City of Riverside wells, five City of Redlands wells, and two Loma Linda University wells, for a total of 31 wells.

October 1997, three City of Riverside water system sampling points were added to the WSCP, including the Gage system pipeline (Gage Delivery), the Waterman system pipeline (Iowa Booster), and the sampling station measuring outflow from the Linden and Evans Reservoirs (7th & Chicago).

March 1998, two City of Loma Linda water system sampling points were added to the WSCP, including the Mountain View system pipeline (Mountain View Blend at Lawton) and the Richardson system pipeline (Richardson Blend).

June 1998, one City of Riverside irrigation water system sampling point (Gage Arlington) and one additional City of Loma Linda water system sampling point (Mountain View Blend at Timoteo) were added to the WSCP.

December 1998, the COLL Richardson #3 well was added to the WSCP Sampling Program.

May 1999, Sampling of Mountain View Blend at Timoteo was discontinued because it does not represent a blend sample of the Mountain View pipeline system.

December 1999, the COLL Mountain View #3 well and the Gage 98-1 well were added to the WSCP Sampling Program

February 2000, the COLL Richardson #2 well was decommissioned, and therefore removed from the WSCP Sampling Program.

May 2000, Mountain View #2 was decommissioned, and therefore removed from the WSCP Sampling Program.

TABLE 2 WSCP PRODUCTION WELL SAMPLING PROGRAM

Well Number	Well Name	Perchlorate	TCE
City of Loma Line	la		
3106	Mountain View #3	X 1	X
693	Richardson #1	X	X
707	Richardson #3	X	X
City of Loma Lind	la Water System Sampling Points		
2967	Mountain View Blend - Lawton	x	X
2968	Richardson Blend	X	X
Mountain View P	ower (Formerly Southern California	Edison)	
554	SCE #2 (AUX)	X	X
Loma Linda Univ			
267	LL Univ Anderson #2	T X I	
717	LL Univ Anderson #3	X	
City of Riverside			
252	Gage #26-1	X	X
258	Gage #27-1	X	X
259	Gage #27-2	X	X
260	Gage #29-1	X	X
219	Gage #29-2	X	X
220	Gage #29-3	X	X
218	Gage #30-1	X	X
214	Gage #31-1	X	X
215	Gage #46-1	X	X
253	Gage #51-1	X	X
216	Gage #56-1	X	X
257	Gage #66-1	X	X
644	Gage #92-1	$\frac{1}{x}$	X
641	Gage #92-2	X	X
642	Gage #92-3	X	X
3091	Gage #98-1	$\frac{1}{x}$	X
	(Waterman System)		
273	Hunt #6	I X I	
271	Hunt #10	$\frac{\hat{x}}{x}$	
272	Hunt #11	$\frac{1}{x}$	
	Water System Sampling Points		
2946	Iowa Booster (Waterman)	X	X
2947	Gage Delivery (Gage)	$\frac{1}{x}$	X
2948	7th & Chicago (Reservoir)	X	X
3018	Gage Arlington	X	
City of Redlands			
542	COR Church St	X	
2673	COR #38	X	
535	COR Mentone Acres	X	
29	COR Orange St	$\frac{1}{x}$	
74	COR Rees	$\frac{1}{x}$	X
Notoe:	100.1.000		

Notes:

TCE = Trichloroethene

Perchlorate analyzed using DHS Method (EPA 300.0 Modified) TCE analyzed using EPA Method 502.2

TABLE 3

WSCP PRODUCTION WELL SAMPLING PROGRAM JULY 2000 WELLS SAMPLED TWICE MONTHLY

Well Number	Well Name	Perchlorate	-	TCE
City of Loma Lin	ıda			i i i a
692	Richardson #1	X		×
City of Riverside	(Gage System)		Make	
252	Gage #26-1	X		
219	Gage #29-2	X		
220	Gage #29-3	X		
253	Gage #51-1	X		
644	Gage #92-1	X		

Notes:

TCE = Trichloroethene

Perchlorate analyzed using DHS Method (EPA 300.0 Modified)

TCE analyzed using EPA Method 502.2

TABLE 4

WSCP PRODUCTION WELL SAMPLING PROGRAM JULY 2000 DATA RESULTS

Well Number	Well Name		Perchlorate (ug/L)	TCE (ug/L)
		Sample Date	Del Mar	Del Mar
City of Loma Line	a	, <u>varipio 22.0</u>	1	
3106	Mountain View #3	7/5/00	ND (4.0)	NĎ (0.5)
3106	Mountain View #3 (Duplicate)	7/5/00	ND (4.0)	ND (0.5)
693	Richardson #1 ^c	7/5/00	7.9	0.5
693	Richardson #1 ^c	7/17/00	15	NA
707	Richardson #3	7/5/00	ND (4.0)	ND (0,5)
City of Loma Line	la Water System Sampling Points			
2967	Mountain View Blend - Lawton	7/5/00	ND (4.0)	ND (0.5)
2968	Richardson Blend	NŞ	NŞ	NS
	ower (Formerly Southem California I			
	SCE #2 (AUX)	7/3/00	ND (4.0)	ND (0.5)
Loma Linda Univ			· · · · · · · · · · · · · · · · · · ·	
267	LL Univ Anderson #2	7/5/00	ND (4.0)	NA NA
717	LL Univ Anderson #3	7/5/00	ND (4.0)	NA NA
City of Riverside	(Gage System)		,	
252	Gage #26-1 ^b	7/3/00	14	7.7
252	Gage #26-1 ^b	7/17/00	10	NA .
258	Gage #27-1 ^b	7/3/00	4.3	6.1
259	Gage #27-2	7/3/00	6.2	ND (0.5)
260	Gage #29-1	7/3/00	5	ND (0.5)
219	Gage #29-2 ^b	7/3/00	28	4.7
219	Gage #29-2 ^b (Duplicate)	7/3/00	35	4.7
219	Gage #29-2 ^b	7/17/00	27	NA
220	Gage #29-3 ^b	7/3/00	46	7.3
220	Gage #29-3 ^b (Duplicate)	7/3/00	44	7.1
220	Gage #29-3 ^b	7/17/00	46	NA
220	Gage #29-3 ^b (Duplicate)	7/17/00	45	NA
218	Gage #30-1	7/3/00	ND (4.0)	ND (0.5)
214	Gage #31-1	7/3/00	ND (4.0)	ND (0.5)
215	Gage #46-1	7/3/00	ND (4.0)	ND (0.5)
253	Gage #51-1 ^b	7/3/00	19	ND (0.5)
253	Gage #51-1 ^b	7/17/00	20	NA
216	Gage #56-1	7/3/00	ND (4.0)	ND (0.5)
257	Gage #66-1	7/3/00	9.6	ND (0.5)
644	Gage #92-1 ^b	7/3/00	20	1.2
644	Gage #92-1 ^b	7/17/00	17	NA
641	Gage #92-2	7/3/00	ND (4.0)	ND (0.5)
642	Gage #92-3	7/3/00	ND (4.0)	ND (0.5)
3091	Gage #98-1	7/3/00	ND (4.0)	ND (0.5)
	(Waterman System)			
273	Hunt #6	NS	NS	NŠ.
271	Hunt #10	7/17/00	ND (4.0)	NA
272	Hunt #11	NS NS	NŞ	NŞ
	Water System Sampling Points			- · ·
	lowa Booster (Waterman)	7/5/00	ND (4.0)	ND (0.5)
2947	Gage Delivery (Gage)	7/3/00	7.1	ND (0.5)
2948	7th & Chicago (Reservoir)	7/5/00	ND (4.0)	ND (0.5)
3018	Gage Arlington	7/3/00	ND (4.0)	NA NA
City of Redlands	COR Church Sta	7/2/00	T ND (4.5)	N1A
542	COR Church St ^a	7/5/00	ND (4.0)	NA NA
2673	COR #38 ^a	7/5/00	ND (4.0)	NA NA
535	COR Mentone Acresa	7/5/00	ND (4.0)	NA
29	COR Orange St ^a	7/5/00	ND (4.0)	NA
74	COR Rees	7/5/00	ND (4.0)	ND (0.5)

Notes

* = Twice-monthly sampling result

ND(4) = Not detected at the specified limit

NA = Not Analyzed
NS = Not Sampled

TCE = Trichloroethene

Perchlorate analyzed using DHS Method (EPA 300.0 Modified

TCE analyzed using EPA Method 502.2

a = Well sampled on quarterly basis, if active

b = TCE treatment is installed

c =Water purged to waste and not into system

TABLE 5

SUMMARY OF WATER LEVEL MEASUREMENTS JULY 2000 SAMPLING EVENT

			Depth to	Measuring Point	Groundwater				
Well Number	Well Name	Measure Date	Water	Elevation	Elevation	Comments			
City of Loma Linda									
3106	Mountain View #3	6/2/00	115	1086	971	Pumping			
693	Richardson #1	6/2/00	173	1077	904	Static			
707	Richardson #3	6/2/00	222	1078.69	856.69	Pumping			
Mountian View Po	Mountian View Power (Formerly Southern California Edison)								
554	SCE #2 (AUX)	NM	NM	1100	NM	Pumping			
Loma Linda Unive	ersity								
267	LL Univ Anderson #2	NM	NM	1075	NM	Pumping			
717	LL Univ Anderson #3	NM	NM	1070	NM	Pumping			
City of Riverside (-		A				
252	Gage #26-1	6/13/00	100.20	1045.33	945.13	Pumping			
258	Gage #27-1	6/13/00	94.00	1044.64	950.64	Pumping			
259	Gage #27-2	6/13/00	85.50	1044.64	959.14	Pumping			
260	Gage #29-1	6/13/00	94.20	1044.43	950.23	Pumping			
219	Gage #29-2	6/13/00	88.70	1046.31	957.61	Pumping			
220	Gage #29-3	6/13/00	84.40	1048.75	964.35	Pumping			
218	Gage #30-1	6/13/00	164.80	1054.17	889.37	Pumping			
214	Gage #31-1	6/13/00	107.70	1054.64	946.94	Pumping			
215	Gage #46-1	6/13/00	106.30	1065.5	959.2	Pumping			
253	Gage #51-1	6/13/00	143.30	1044.64	901.34	Pumping			
216	Gage #56-1	6/13/00	199.40	1065.5	866.1	Pumping			
257	Gage #66-1	6/13/00	143.60	1044.85	901.25	Pumping			
644	Gage #92-1	6/13/00	173.80	1047.78	873.98	Pumping			
641	Gage #92-2	6/13/00	200.30	1053.38	853.08	Pumping			
642	Gage #92-3	6/13/00	200.80	1058.78	857.98	Pumping			
3091	Gage #98-1	6/13/00	192.80	1058.78	865.98	Pumping			
City of Riverside	(Waterman System)	-							
273	Hunt #6	6/15/00	NM	1015.5	NM	Pumping			
271	Hunt #10	6/15/00	NM	1017	NM	Pumping			
272	Hunt #11	6/15/00	NM	1015.7	NM	Pumping			
City of Redlands				<u>`</u>		·			
542	COR Church St	Jun-00	120.0	1344.8	1224.8	Static			
2673	COR #38	Jun-00	145.0	1193	1048	Pumping			
535	COR Mentone Acres	Jun-00	223.0	1506.4	1283.4	Pumping			
29	Cor Orange St	Jun-00	121.0	1282	1161	Static			
74	COR Rees	Jun-00	247.0	1490	1243	Pumping			

Notes:

All measurements reported in feet below measuring point (ft-bmp)

Water level measurements for all City of Loma Linda, City of Riverside, and City of Redlands wells were obtained by purveyor personnel. Elevations given in feet above mean sea level (ft-msl)

NM = Not measured

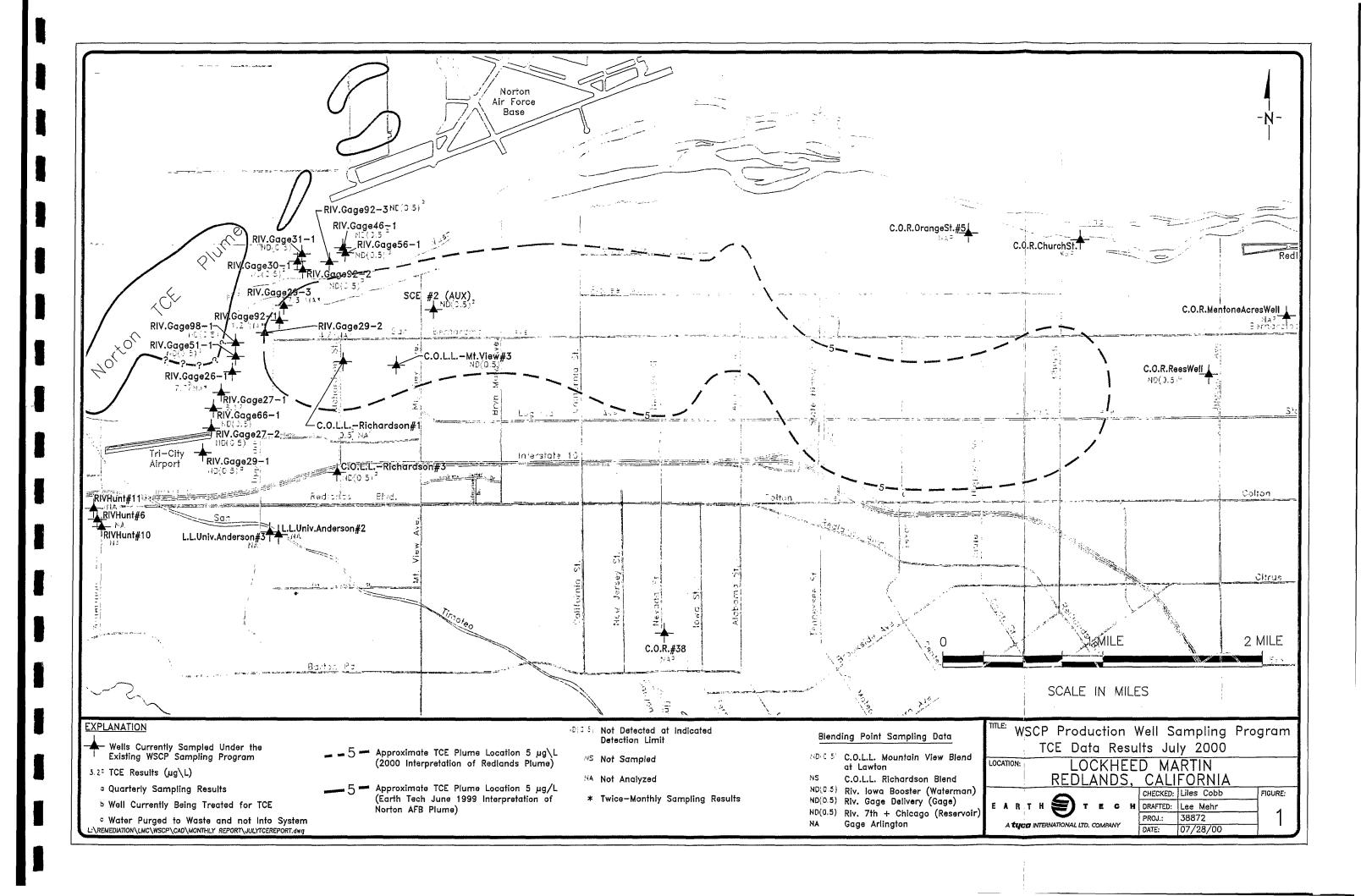
NA = Data not available

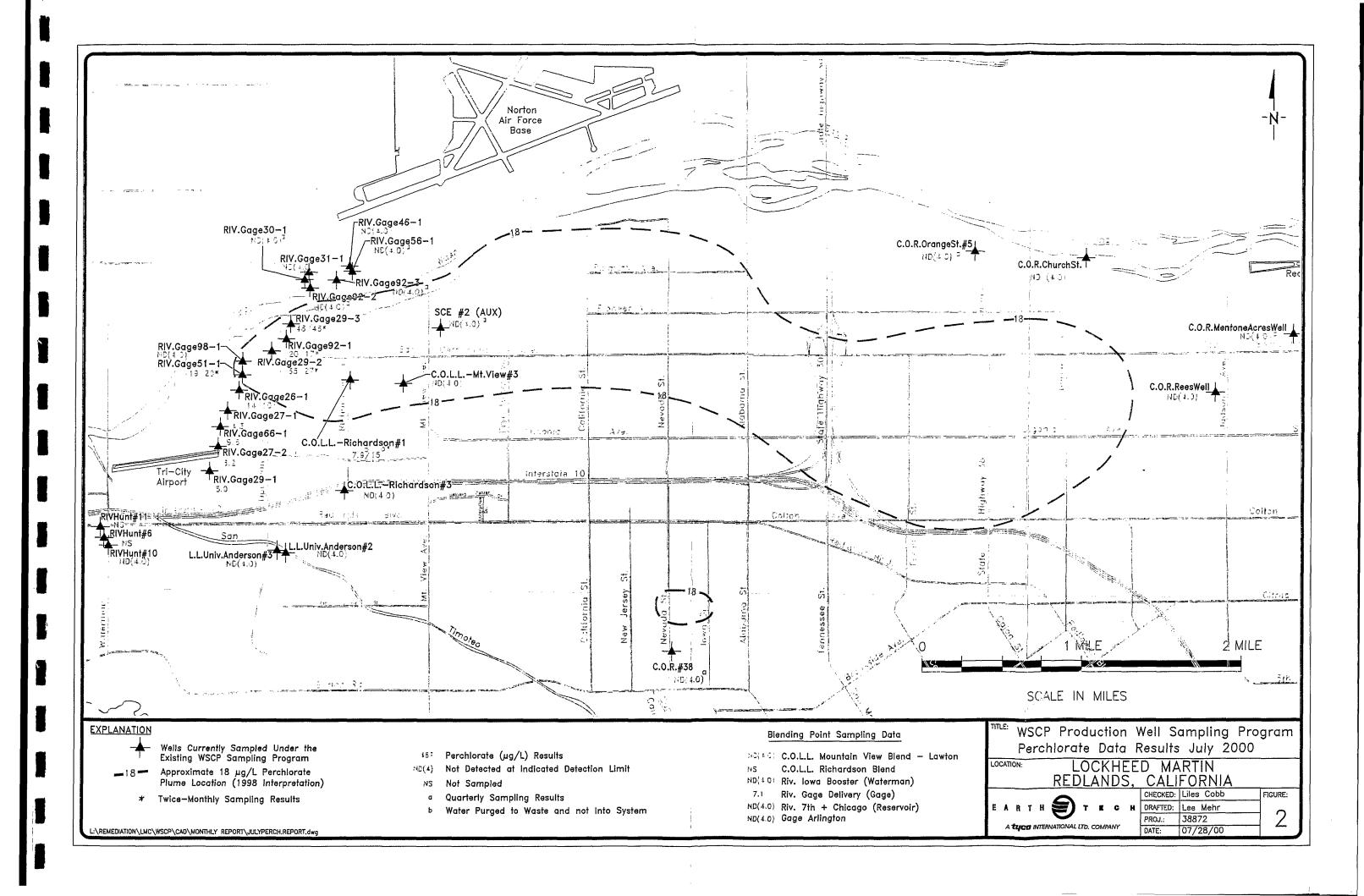
Static water levels were allowed to recover a minimum of 30 minutes to obtain a static water level measurement

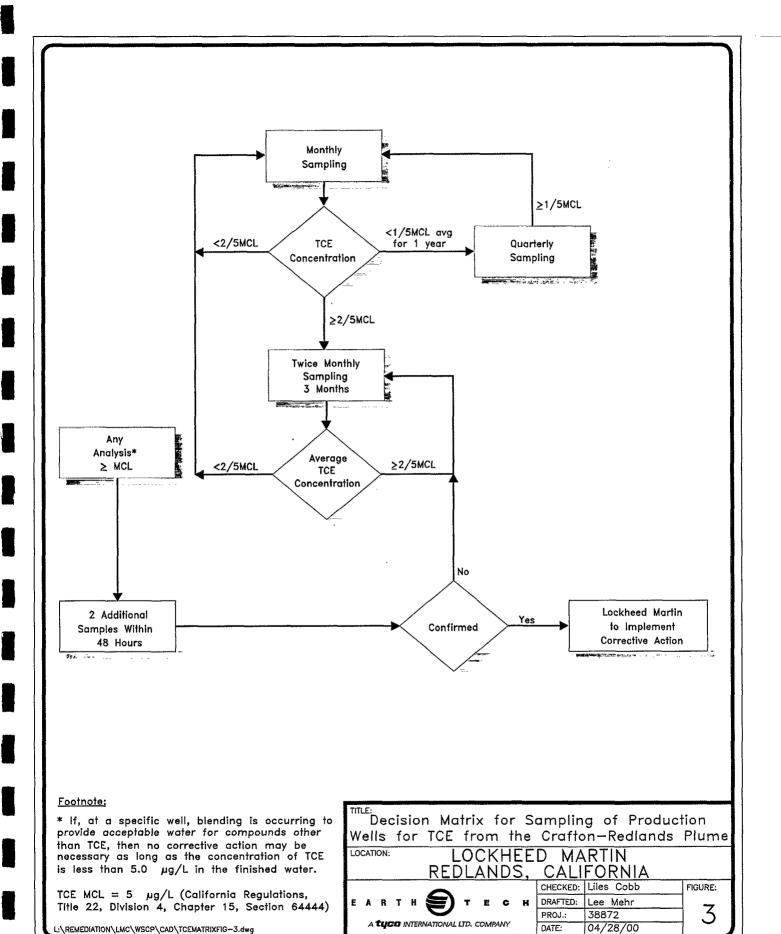
TABLE 6
WSCP PRODUCTION WELL SAMPLING PROGRAM
JULY 2000 SAMPLE IDENTIFICATIONS

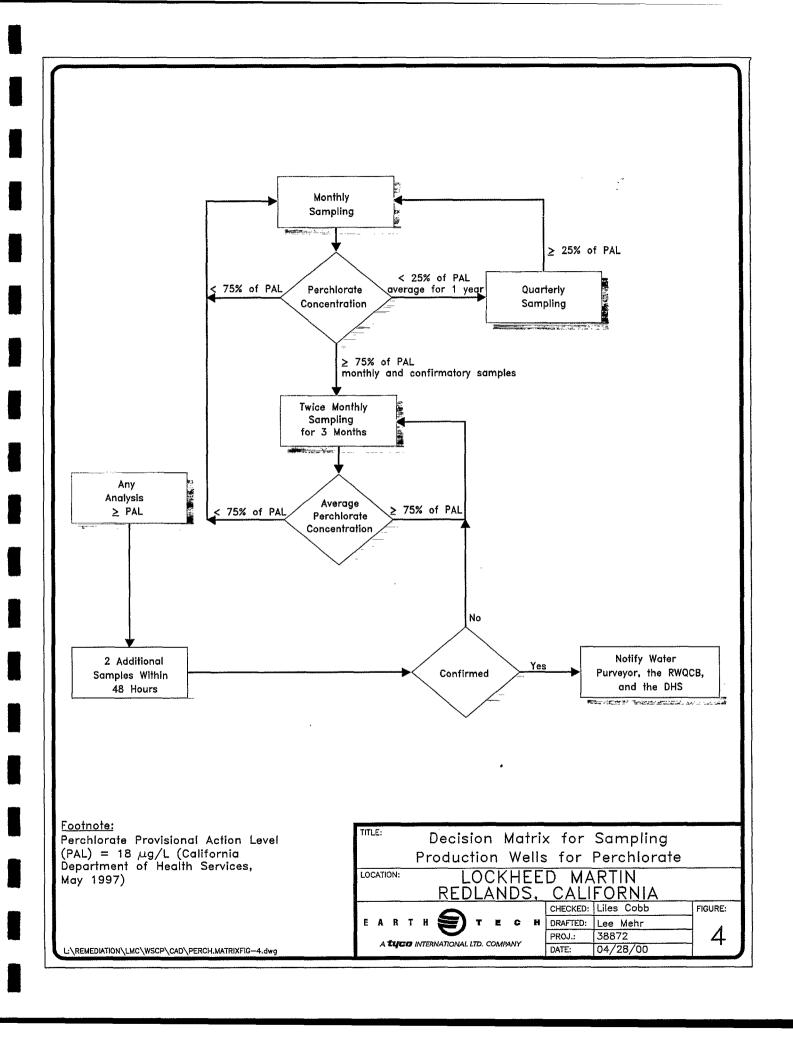
Well Number	Well Name		Sample	Sample Number	Analyzed for	Analyzed for
		Sample Date	Time	Identification	Perchlorate	TCE
City of Loma Lind	a	**************************************		·····		
3106	Mountain View #3	7/5/00	10:55	GW-7-27	Yes	Yes
3106	Mountain View #3 (Duplicate)	7/5/00	10:58	GW-7-28	Yes	Yes
693	Richardson #1	7/5/00	9:50	GW-7-25	Yes	Yes
693	Richardson #1	7/17/00	9:55	GW-7-36	Yes	No
707	Richardson #3	7/5/00	10:25	GW-7-26	Yes	Yes
City of Loma Lind	a Water System Sampling Points			····	**************************************	, , , , , , , , , , , , , , , , , , ,
2967	Mountain View Blend - Lawton	7/5/00	11:45	GW-7-29	Yes	Yes
2968	Richardson Blend	NS	NS	N\$	NS	NŞ
Mountain View Po	ower (Formerly Southern California E	dison)	······································			
554	SCE #2 (AUX)	7/3/00	16:57	GW-7-19	Yeş	Yeş
Loma Linda Unive	ersity	······································	-			
267	LL Univ Anderson #2	7/5/00	13:30	ĞŴ-7-32	Yes	No
717	LL Univ Anderson #3	7/5/00	13:45	GW-7-33	Yeş	No
City of Riverside	(Gage System)					
252	Gage #26-1	7/3/00	11:07	GW-7-9	Yes	Yes
252	Gage #26-1	7/17/00	12:08	GW-7-42	Yes	No
258	Gage #27-1	7/3/00	12:38	GW-7-12	Yes	Yes
259	Gage #27-2	7/3/00	14:50	GW-7-14	Yes	Yes
260	Gage #29-1	7/3/00	15:15	GW-7-15	Yes	Yes
219	Gage #29-2	7/3/00	10:33	GW-7-7	Yes	Yes
219	Gage #29-2 (Duplicate)	7/3/00	10:36	GW-7-8	Yes	Yes
219	Gage #29-2	7/17/00	11:45	GW-7-41	Yes	No
219	Gage #29-3	7/3/00	16:22	GW-7-17	Yes	Yes
220	Gage #29-3 (Duplicate)	7/3/00	16:25	GW-7-18	Yes	Yes
220	Gage #29-3	7/17/00	11:20	GW-7-39	Yes	No
220	Gage #29-3 (Duplicate)	7/17/00	11:25	GW-7-40	Yes	No
218	Gage #30-1	7/3/00	9:55	GW-7-6	Yes	Yes
214	Gage #31-1	7/3/00	9:35	GW-7-5	Yes	Yes
215	Gage #46-1	7/3/00	8:20	GW-7-2	Yes	Yes
253	Gage #51-1	7/3/00	11:32	GW-7-10	Yes	Yes
253	Gage #51-1	7/17/00	12:25	GW-7-43	Yes	No
216	Gage #56-1	7/3/00	8:40	GW-7-3	Yes	Yes
257	Gage #66-1	7/3/00	14:17	GW-7-13	Yes	Yes
644	Gage #92-1	7/3/00	7:50	GW-7-1	Yes	Yes
644	Gage #92-1	7/17/00	10:58	GW-7-38	Yes	No
641	Gage #92-2	7/3/00	15:50	GW-7-16	Yes	Yes
642	Gage #92-3	7/3/00	9:10	GW-7-4	Yes	Yes
3091	Gage #98-1	7/3/00	12:08	GW-7-11	Yes	Yes
	(Waterman System)	The Title of the second se				
273	Hunt #6	NS	NS	NS	NS	NA
271	Hunt #10	7/17/00	10:23	GW-7-37	NS	NA
272	Hunt #11	NS	NŞ	NS	NS	NA NA
	Water System Sampling Points				**************************************	
2946	Iowa Booster (Waterman)	7/5/00	14:47	GW-7-34	Yes	Yes
2947	Gage Delivery (Gage)	7/3/00	17:45	GW-7-20	Yes	Yes
2948	7th & Chicago (Reservoir)	7/5/00	15:25	GW-7-35	Yes	Yes
3018	Gage Arlington	7/3/00	18:05	GW-7-21	Yes	No
3018	Gage Arlington	7/17/00	13:45	GW-7-44	Yęş	No No
City of Redlands	<u> </u>	, , , , , , , , , , , , , , , , , , ,				.,
542	COR Church St	7/5/00	9:15	GW-7-24	Yes	NA NA
2673	COR #38	7/5/00	12:58	GW-7-31	Yes	NA
535	COR Mentone Acres	7/5/00	8:50	GW-7-23	Yes	NA
29	COR Orange St	7/5/00	12:25	GW-7-30	Yes	NA NA
74	COR Rees	7/5/00	8:25	GW-7-22	Yes	Yes

FIGURES









ATTACHMENT A

FIELD SAMPLE FORMS (Available Upon Request)

ATTACHMENT B

CHAIN-OF-CUSTODY RECORDS AND
LABORATORY DATA SHEETS AND LEVEL III MODIFIED
QUALITY ASSURANCE/QUALITY CONTROL DOCUMENTATION
(Available Upon Request)